

TRIGGER AGENTS IN VIDEO STREAMS FROM DRONES

BACKGROUND

A delivery service may deliver items to its customers in a variety of different ways. For example, an item ordered by a customer from an electronic marketplace may be removed from a shelf in a warehouse by a human picker, loaded into a freight truck, transferred to a delivery van, and delivered to the customer's doorstep by a delivery person. In some cases, the item may also be transported by an airplane, a train, a motorcycle, a bicycle, or any combination of the foregoing. However, current delivery techniques may not enable a very robust ability to recognize physical issues with delivery destinations.

BRIEF DESCRIPTION OF THE DRAWINGS

Various embodiments in accordance with the present disclosure will be described with reference to the drawings, in which:

FIG. 1 illustrates an example data flow for a data analysis service associated with delivering an item from an electronic marketplace as described herein, according to embodiments;

FIG. 2 illustrates an example data flow for a data analysis service associated with delivering an item from an electronic marketplace as described herein, according to embodiments;

FIG. 3 illustrates an example device for implementing techniques relating to a data analysis service associated with delivering an item as described herein, according to embodiments;

FIG. 4 illustrates an example schematic architecture and devices for implementing techniques relating to a data analysis service associated with delivering an item as described herein, according to embodiments;

FIG. 5 illustrates an example content analysis module that may be utilized in implementing the data analysis service as described herein, according to embodiments;

FIG. 6 illustrates an example diagram depicting techniques relating to a data analysis service associated with delivering an item as described herein, according to embodiments;

FIG. 7 illustrates an example data flow for a data analysis service associated with delivering an item as described herein, according to embodiments;

FIG. 8 illustrates an example flow diagram for a data analysis service associated with delivering an item as described herein, according to embodiments;

FIG. 9 illustrates an example data flow for a data analysis service associated with delivering an item as described herein, according to embodiments; and

FIG. 10 illustrates an environment in which various embodiments can be implemented.

DETAILED DESCRIPTION

In the following description, various embodiments will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the embodiments may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

Techniques described herein include embodiments directed to analyzing location data while delivering an item

with an unmanned aerial vehicle (UAV) to identify properties about the location associated with the delivery as requested by the property owner. The techniques, however, may be applicable to interaction with other unmanned vehicles, whether aerial or otherwise, or intended for delivery or otherwise. In the context of this specification, unmanned aerial vehicles may be configured with data capturing devices (e.g., video cameras, cameras, microphones, audio sensors, etc.) for capturing data while delivering an item as permitted. For example, an unmanned aerial vehicle may capture and/or record video data while delivering an item to a customer. The unmanned aerial vehicle may access a delivery plan that includes a delivery location associated with a human recipient. As the unmanned aerial vehicle makes its way to the delivery location, it may capture data such as video data or audio data as requested by the property owner associated with the delivery location. The location data may be stored (e.g., temporarily in a cache or more permanently) and/or analyzed locally. Alternatively, the location data may be transmitted to a server computer system, where the data may be stored and/or analyzed as permitted.

The location data may be analyzed by one or more service provider computers (which, as used herein, could be located on the unmanned aerial vehicles) that are configured to implement embodiments described herein; for example, to identify properties about a location (e.g., associated with the customer) as allowed. In accordance with at least one embodiment, the one or more service provider computers may utilize image recognition or video recognition techniques for identifying interesting or unique properties associated with the delivery location. For example, the one or more service provider computers may analyze the data and identify that the roof of the location is in disrepair and in need of service. Subsequently, the one or more service provider computers may generate and provide a recommendation to the customer informing them of the identified property and offering an item or service that is appropriate for the identified property (e.g., a roof repair service recommendation). As will be discussed in more detail below, data analysis and subsequent actions may be performed by the unmanned aerial vehicle while capturing the footage and delivering the item, by the vehicle at a later time upon the return of the unmanned aerial vehicle after delivering the item and/or by server computers either during or after the delivery as permitted or requested by users associated with the service or on behalf of users that have opted-in to the features of the service described herein.

In a non-limiting example, a user, who has opted-in to the service described herein, may order an item for delivery from an electronic marketplace. Service provider computers associated with the electronic marketplace may provide instructions to an unmanned aerial vehicle to deliver the ordered item to the user's home according to a delivery plan. Thereafter, as the unmanned aerial vehicle is in flight and delivering the item, data may be captured by the vehicle and transmitted back to the service computers for data analysis. For example, the unmanned aerial vehicle may capture video data that includes brown and dying trees located near the user's home. The service provider computers may utilize image and/or video recognition techniques and software to identify that the trees require service (e.g., services that can be provided by an arborist). The service provider computers may, in response to identifying that the trees near the user's home are dying, generate and provide a recommendation to the user that includes information about arborist services or items such as fertilizers that can help the user's trees. The